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NEW HAMPSHIRE
AGRICULTURAL EXPERIMENT STATION
DEPARTMENT OF CHEMISTRY

Analysis of Feeding-Stuffs

MADE FOR THE
STATE DEPARTMENT OF AGRICULTURE



BY B. E. CURRY AND T. O. SMITH

NEW HAMPSHIRE COLLEGE
OF
AGRICULTURE AND THE MECHANIC ARTS
DURHAM, N. H.

NEW HAMPSHIRE COLLEGE OF AGRICULTURE AND
THE MECHANIC ARTS.

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ing Clerk.*
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FEEDING-STUFFS INSPECTION AND ANALYSIS, 1915.

The samples of the various brands of feeding-stuffs for the 1915 inspection were collected by Mr. A. G. Weeks under the direction of Mr. Andrew L. Felker, Commissioner of Agriculture. In all, 319 samples were received by the Experiment Station. Of these 314 have been analyzed. Samples representing duplicates are not reported in this bulletin.

It has been the custom of the Experiment Station to analyze miscellaneous samples of feed-stuffs without cost to the sender when the results are of general public interest. Some dealers have been purchasing cottonseed meal of Humphrey-Godwin Company on a basis of 41% protein. This meal is guaranteed to the consumer to contain 38.62% protein. The dealer may send a sample of this meal to the Experiment Station and get a return of 39% protein. He then gets a rebate of \$1.00 per ton from Humphrey-Godwin Company. If the consumer has a sample analyzed and gets the same returns he can not get the rebate because his guarantee calls for 38.62% protein. The Experiment Station can not become a party to a practice which benefits the jobber and dealer and not the consumer to the same extent. So far as we know all other brands of cottonseed meal are sold to the dealer and consumer on the same guarantee.

In December, 1914, Humphrey-Godwin Company advised us that beginning last fall they ceased to quote "basis 41% protein." From this we inferred that their cottonseed meal was not guaranteed to the dealer to contain over 38.62% protein, which is the minimum guarantee. Nevertheless, within a few days the Experiment Station has been advised by dealers that the Dixie brand meal was guaranteed to them to contain 41% protein. Statements from the two sources are at variance.

This practice was referred to in the 1914 report. It is again discussed at this time to bring before our consumers a little more definitely the methods that are used to increase the profits of jobbers and dealers. The consumer should know that he is the one who pays. Also the public has this opportunity to know that it is not the business of the Experiment Station to become a referee

between the jobber and dealer. That is the business of the commercial chemist. The Experiment Station hereafter must decline to analyze samples of cottonseed meal or other feed-stuffs unless the results are of general public interest. The results are not of general public interest when only the jobber and dealer are concerned.

We wish to point out an example to show how the double guarantee works out practically. It appears that in or about the month of January, 1915, D. Whiting & Sons of Claremont, N. H., received a carload of cottonseed meal from Humphrey-Godwin Co., and had the same analyzed at the Experiment Station. This sample was reported to contain 35% protein. Another lot of cottonseed meal was analyzed for these people by request and was reported to contain 32.68% protein. After these reports were received by D. Whiting & Sons, they continued to sell the cottonseed meal guaranteed to contain 38.62% protein. Three lots of this meal which had been sold were sampled by a representative of the State Commissioner of Agriculture and were found to contain protein as follows:

Sample 1	35.00% protein
Sample 2	31.70% protein
Sample 3	31.61% protein

The interesting thing about it is this: D. Whiting & Sons were entitled to receive a rebate of \$3.00 per ton on one lot and more than \$4.00 on the other lot. However, the consumers who purchased the poorer meal received more than a dollar less rebate than D. Whiting & Sons were entitled to get. This is a concrete example of how the double guarantee practice works out to the detriment of the consumer and to the advantage of the retail dealer. This also is a concrete example showing why the Experiment Station will not analyze samples of feeding-stuffs to enable the dealer to secure a rebate all of which the consumer can not also secure.

It might be said here that D. Whiting & Sons laid themselves open to prosecution when they sold the three lots of meal referred to above. They escaped being prosecuted only because the court in Sullivan County did not convene until May and because in the meantime information

about the intended prosecution leaked out and rebates were made. However, as shown above, D. Whiting & Sons were able to gain more than \$1.00 per ton on one carload of the meal by securing more than \$4.00 per ton and rebating only \$3.00 per ton. It is to be hoped that Humphrey-Godwin Co. and their representatives will arrange to change their methods of doing business.

It is not the purpose of the Experiment Station to furnish analyses whereby our consumers can secure a \$3.00 rebate and the dealer a \$4.00. We regret that conditions have made it possible to report these facts. Humphrey-Godwin Co. were requested to stop the double guarantee practice but did not do so. As a result, these facts are laid before the public at this time.

There are many standard feed-stuffs to be had on the New Hampshire market. For the most part they are sold at reasonable prices. The average digestibility of these has been determined and their digestibility and composition vary but little from year to year. From the tables in this report, the consumer can find the average composition and digestibility of these.

Provender is understood to be the product obtained when whole corn and whole oats are ground together. Some mixtures are being made from corn and "Oat Feed" and sold as provender. The wholesale price of "Oat Feed" is about \$15.00 per ton. However, what prices we have seen go to show that this mixture is sold for about the same price as provender. The consumer should understand that the value of such a mixture is much less. The consumer should understand that the so-called "Oat Feed" shipped into this state from Canada carries about three times as much indigestible matter and half as much protein and fat as whole ground oats. However, some of this material is being sold for as much as \$1.60 per hundred. It sells for about \$.75 per hundred wholesale.

Holstein Feed and Bluegrass Feed are for the most part mixtures of wheat bran and ground corneob. They retail for almost as much as good wheat bran or mixed feed. Star Feed is another mixture containing ground corn cobs. It is difficult to understand why our dealers and consumers will continue to buy these materials. It is still

more difficult to understand why the consumer will often pay more for these than for thoroughly good products.

Another class of feeds found on the market year after year are molasses feeds. These have considerable feeding value but almost without exception they contain relatively large amounts of light weight and inferior material. Sound and high-grade cereal by-products, for the most part, are relatively heavy and will not float when stirred into water. Some of the molasses feeds contain as much as 34% of light weight and inferior material which is lighter than water. This contains large amounts of crude fiber. One brand of these feeds contained 28% light weight material which in turn contained 28.5% crude fiber. Another sample contained 34% light weight material which contained 29% crude fiber. This light weight material is generally poor in protein. Usually high-grade materials rich in protein are added to the poor material to bring the average up. The consumer usually pays about as much for this poor material as he would have to pay for products of good quality.

New Hampshire consumers can not afford to buy feed-stuffs of poor quality, unless the price is proportionately low. Such material should be used at or near the point of manufacture. The freight and many of the overhead charges are the same on poor and good products. The selling charges are often many times greater on the feeds which are inferior in quality. We are informed that the commission for selling bran, gluten, and other standard products is \$5.00 per ear. On some others, the commission may be \$35.00 to \$45.00. The retailer, in turn, probably requires a higher commission for handling these low-grade products. This is supported by the fact that "Oat Feed" put up by the Robin Hood Mills often retails from \$1.25 to \$1.60 per hundred pounds. This material is quoted at about \$15.00 per ton wholesale. The retailer apparently adding \$10.00 to \$15.00 per ton to the wholesale price.

The corn and oat feeds, as a whole, appear to be declining in quality. The amount of crude fiber is increasing. This would indicate that the manufacturers are using a greater amount of oat feed or oats of an inferior

quality. Some of the corn and oat feeds, however, are of excellent quality. The consumer should scrutinize carefully the guarantee and examine the product to make certain that an undue amount of oat hulls is not present. Whole ground oats on the average contains about 10.8% crude fiber. Ground corn contains about 2.2% fiber. A mixture of equal parts should contain 6.5% crude fiber. A mixture containing two parts of oats and one of corn would contain about 8% crude fiber. In general the quality of a corn and oat feed becomes suspicious when the crude fiber reaches more than 8%.

Notwithstanding such exceptions as have been mentioned the market offers thoroughly good compounded feeds. The retail prices of these are but little greater than for feeds of much poorer quality. The consumer should study his needs and buy the feeds which are the most economical. Compounded feeds made from a mixture of good products and poor products usually sell for about the same price as the better ingredients alone. In other words, the consumer pays as much for poor products as for good products when they are mixed together.

Where wheat feeds are mixed with ground screenings, the product should be labeled to show that this has been done. No samples that we have examined have contained an excessive amount of light weight material such as is often found in screenings.

THE CONSTITUENTS OF FEEDING-STUFFS.

In the complete chemical analysis of a feeding-stuff the following determinations are made: moisture, ash, protein, fat, fibre, and nitrogen-free extract. The value of a feeding-stuff is often based on the amount of protein and fat it contains. For that reason these two constituents are sometimes the only ones determined. While the amount of protein and fat is important, at the same time the carbohydrates are also very important and in many classes of feeding-stuffs form the chief source of value.

MOISTURE.

Water is present to some extent in all classes of feeds. The per cent in most cases varies between five and fif-

teen. The amount varies with the nature of the feed, the process of manufacture, and the manner of storage.

ASH.

The ash of a feed is the residue left after burning off the organic matter. It represents the inorganic or mineral constituent of the plant. This part of the feed furnishes the material for the bones of the animal.

CRUDE PROTEIN.

By crude protein is meant that portion of a feeding-stuff which contains nitrogen. Nitrogenous feeds build up muscular tissue and the proteins are of the greatest importance in determining the value of a feed. Most of the crude protein in the plant is found at the point of growth, or in the leaves and seeds.

CRUDE FAT.

The term crude fat is rather arbitrarily used to include all the portions of the feed soluble in dry ether or similar solvents. They are the pure fats, such as cottonseed oil, linseed oil, etc., and the waxes, resins, chlorophyll, etc. These latter substances are generally so small in amount that for practical purposes the ether extract of a feed represents the amount of fat which it contains. The fats are readily digested and rank next to protein in value.

FIBRE.

The crude fibre in a feeding-stuff is that portion which goes to make up the cell-walls and structural material of the plant. It is fairly indigestible and in general a *high* percentage of crude fibre indicates a *low-grade* feed.

NITROGEN-FREE EXTRACT.

The nitrogen-free extract is that portion of the feed readily extracted by water or dilute acids and composed of non-nitrogenous materials. The principal substances included under the term are the starches and sugars.

CARBOHYDRATES.

The term carbohydrates is sometimes used in speaking of feeding-stuffs. It is generally used to include both

erude fibre and nitrogen-free extract. A feeding-stuff which contains small amounts of moisture, ash and crude fibre must be classed as high grade, if digestible. When these constituents are present in small amounts the total amount of the valuable constituents—protein, fat and nitrogen-free extract—must be high.

THE VALUE OF A CHEMICAL EXAMINATION OF COMMERCIAL FEEDING-STUFFS.

The chemical analysis of feeding-stuffs is valuable in many ways, chief of which are the following:

1. It shows whether or not the guarantees of the manufacturer are correct.
2. It protects the buyer against the unscrupulous manufacturer or retailer.
3. It aids the buyer in deciding money values in purchasing feed.
4. It affords a clue as to the nature of the constituents of the feed.
5. It furnishes data for making up any desired feeding ration.
6. It enables the consumer to decide whether it is a useful feed for his particular purpose.
7. It protects the manufacturer of good products.

The following definitions are given for the use of the consumer and represent the terms used for the particular feeding-stuffs by the general trade:

GENERAL DEFINITIONS.

COTTONSEED MEAL.

Cottonseed meal is the meal obtained from the cottonseed kernel after the extraction of the oil. The following standard classification adopted by the Inter-State Cottonseed Crushers' Association will interest the buyer of cottonseed meal:

“Choice cottonseed meal must be finely ground, perfectly sound and sweet in odor, yellow, free from excess of lint, and by analysis must contain forty-nine per cent of combined protein and fat.”

"*Prime cottonseed meal* must be finely ground, of sweet odor, reasonably bright in color, yellow, not brown or reddish, free from lint, and contain at least forty-six per cent of combined protein and fat."

"*Good cottonseed meal* must be finely ground, of sweet odor, reasonably bright in color, and by analysis must contain at least forty-three per cent of combined protein and fat."

LINSEED MEAL.

Linseed meal, oil meal, or flaxseed meal is the ground residue from the extraction of oil from flaxseed. The oil is extracted by two processes, known as the old process and the new process. In the old process the oil is simply expressed from the seed by hydraulic pressure. In the new process naphtha or a similar solvent is used to extract the oil. On account of the extraction being more complete when a solvent is used, the new process generally contains less fat than the old process, while they contain about the same per cent protein.

WHEAT PRODUCTS.

Wheat bran is the coarse outer covering of the wheat berry. It contains much of the fibrous material of the grain, but is rich in protein.

Middlings or shorts. These terms have generally the same meaning in the trade, and are the fine particles of the outer bran as well as considerable starchy matter. They are the intermediate product between bran and flour.

Red dog is a low-grade wheat flour containing the finer particles of bran.*

Wheat mixed feed or shipstuff is a mixture of the by-products from the milling of the wheat berry.*

Mixed feed. The term mixed feed has been so generally used to mean a mixture of wheat products that it is practically a misrepresentation to use the term to mean a mixture of other cereals. A feed less than fifteen per cent protein and four per cent fat cannot be a good mixed feed. In some cases the wheat screenings are ground and re-mixed with the bran or other by-products. The mixture is then labeled as bran or mixed feed, etc., with mill run screenings.

CORN PRODUCTS.

Corn bran is the outer coating of the corn kernel.* It has a low feeding value.

Corn and cob meal is ground whole ear of corn. In this case the cobs are not considered an adulterant.

Gluten meal is a product obtained in the manufacture of starch and glucose from corn. It is the flinty portion of the kernel which lies in its outer circumference just beneath the hull.*

Gluten feed is a product obtained in the manufacture of starch and glucose from corn and is a mixture of gluten meal and corn bran to which may be added the residue resulting from the evaporation of the so-called "steep water."*

Corn feed meal is the siftings obtained in the manufacture of cracked corn and table meal made from the whole grain.*

Hominy meal, feed or chop is the bran and germs of the corn kernel and may contain a part of the starchy portion of the kernel.*

DISTILLERY AND BREWERY BY-PRODUCTS.

Distillers' dried grains are the dried residue from cereals obtained in the manufacture of alcohol and distilled liquors.*

Brewers' dried grains are dried barley grains after they have been malted and the soluble sugar and dextrin extracted.

Malt sprouts are the sprouts of the barley grain.*

MISCELLANEOUS PRODUCTS.

Alfalfa meal is the entire alfalfa hay ground and does not contain an admixture of ground alfalfa straw or other materials.*

Meat meal is finely ground beef scraps.*

Buckwheat shorts or middlings are that portion of the buckwheat grain immediately inside of the hull after separation from the flour.*

* Definitions marked (*) are those adopted by the Association of Feed Control Officials of the United States.

Molasses feeds, for the most part, consist of a mixture of inferior light weight materials, containing a large amount of crude fiber and having a low digestibility, with high grade products. The addition of the high grade products increases the percentage of protein and decreases the percentage of crude fiber in the final mixture. Together with the molasses the better products help to conceal the identity of the poorer constituents. The molasses adds palatability and supply carbohydrates.

Compound feeds are those feeds bearing trade names which may or may not be descriptive of the materials which have been used in their manufacture. They may contain any mixture of stock feed materials and therefore cannot be compared with standards of average composition. They often represent various industrial by-products such, for example, as are obtained in the manufacture of breakfast and other cereal foods.

For the purpose of making comparisons the following tables are given:

TABLE NO. 1

AVERAGE COMPOSITION OF FEEDING-STUFFS—PER CENT.

(Henry's, Jordan's and Lindsay's Compilations.)

	Dry Matter	Water	Ash	Protein	Fat	Carbohydrate Nitrogen Fibre Free Ext'ct
Corn	89.4	10.6	1.5	10.3	5.0	2.2 70.4
Corn Meal	85.0	15.0	1.4	9.2	3.8	1.9 68.7
Corn Bran	90.6	9.4	1.2	11.2	6.2	11.9 60.1
Corn Chops	87.2	12.3	1.5	9.8	4.4	2.0 69.5
Hominy Meal	90.4	9.6	2.7	10.5	8.0	4.9 64.3
Gluten Feed	90.8	9.2	2.0	25.0	3.5	6.8 53.5
Corn and Cob Meal	84.9	15.1	1.5	8.5	3.5	6.6 64.8
Corn Cob	89.3	10.7	1.4	2.4	0.5	30.1 54.9
Oats	89.6	10.4	3.2	11.4	4.8	10.8 59.4
Oat Middlings	91.2	8.8	4.5	16.2	6.9	7.1 56.5
Oat Feed	93.0	7.0	5.3	8.0	2.9	21.5 55.3
Wheat	89.5	10.5	1.8	11.9	2.1	1.8 71.9
Wheat Bran	88.1	11.9	5.8	15.4	4.0	9.0 53.9
Wheat Middlings (shorts)	88.8	11.2	4.4	16.9	5.1	6.2 56.2
Flour Middlings	90.0	10.0	3.2	19.2	4.8	3.2 56.6
Shipstuff	89.1	10.9	5.6	16.3	4.6	7.5 55.1
Barley	89.2	10.8	2.5	12.0	1.8	4.2 68.7
Buckwheat	86.6	13.4	2.0	10.8	2.4	11.7 59.7
Buckwheat Feed	88.4	11.6	3.9	18.3	4.9	19.2 42.1
Brewers' Dried Grains	91.3	8.7	3.7	25.0	6.7	13.6 42.3
Distillers' Dried Grains....	92.4	7.6	2.0	31.2	12.2	11.6 35.4
Malt Sprouts	90.5	9.5	6.1	26.3	1.6	11.6 44.9

	Dry Matter	Water	Ash	Protein	Fat	Carbohydrates Nitrogen Fibre Free Ext'ct	
Flax Seed	90.8	9.2	4.3	22.6	33.7	7.1	23.2
Linseed Meal (O. proc's) ..	90.2	9.8	5.5	33.9	7.8	7.3	35.7
Linseed Meal (N. proc's) ..	91.0	9.0	5.5	37.5	2.0	8.9	36.4
Cotton Seed	89.7	10.3	3.5	18.4	19.9	23.2	24.7
Cotton Seed Meal	93.0	7.0	6.6	45.3	10.2	6.3	24.6
Alfalfa Hay	91.6	8.4	7.4	14.3	2.2	25.0	42.7
Dried Beet Pulp	91.6	8.4	4.5	8.1	0.7	17.5	60.8
Meat Scraps	89.3	10.7	4.1	71.2	13.7	....	0.3
Molasses Feed	89.6	10.4	6.5	17.1	2.9	11.9	51.2

TABLE NO. 2.

AVERAGE DIGESTIBLE NUTRIENTS OF FEEDS—PER CENT.

(Henry's, Jordan's and Lindsay's Compilations.)

	Dry Matter	Protein	Fat	Fibre	Carbohydrates Nitrogen Free Ext'ct	
Corn	81.35	7.83	4.30	1.28	65.47	
Corn Meal	74.8	6.07	3.46	....	63.29	
Corn Bran	63.42	6.05	4.74	6.78	45.68	
Corn Chop	78.00	6.95	3.88	1.25	64.38	
Hominy Meal	74.13	6.83	7.36	3.28	57.23	
Gluten Feed	79.0	21.25	2.87	5.17	47.62	
Corn and Cob Meal	67.07	4.42	2.94	2.97	57.02	
Corn Cob	52.67	0.4	0.25	19.57	32.94	
Oats	62.72	8.78	4.27	3.35	45.74	
Oat Middlings	82.08	13.12	6.49	3.48	54.24	
Oat Feed	37.20	5.20	2.61	1.88	23.23	
Wheat .....	....	10.2	1.7	69.2	....	
Wheat Bran.....	58.15	11.86	2.5	3.69	38.27	
Wheat Middlings (shorts) ..	....	13.0	4.5	1.86	43.84	
Flour Middlings	73.8	16.9	4.1	1.15	52.45	
Shipstuff	65.04	12.7	4.0	4.65	42.43	
Barley	76.71	8.4	1.6	2.10	63.2	
Buckwheat	61.49	8.1	2.4	2.81	45.37	
Buckwheat Feed .....	....	15.6	4.4	38.2	....	
Brewers' Dried Grains	56.61	20.0	6.0	6.8	25.38	
Distillers' Dried Grains ...	73.00	22.78	11.6	11.02	28.67	
Malt Sprouts	70.59	20.3	1.4	9.63	36.37	
Flax Seed	69.92	20.6	29.0	4.26	12.76	
Linseed Meal (O. proc's) .	71.26	30.2	6.9	4.16	27.85	
Linseed Meal (N. proc's) .	74.62	31.5	2.4	6.59	29.12	
Cotton Seed	59.2	12.5	17.3	17.63	12.35	
Cotton Seed Meal	71.61	37.6	9.6	2.21	19.19	
Alfalfa Hay .....	....	10.44	0.31	10.00	29.89	
Dried Beet Pulp	70.53	4.1	....	12.6	52.29	
Meat Scraps	83.05	66.2	13.4	....	....	
Molasses Feed	64.51	10.8	2.2	6.55	41.47	

Messrs. M. J. Broggini, P. S. Willard, W. I. Waite, A. J. Grant, have assisted in the preparation of the following data.

Name of Sample.	Manufactured by	Address.	Protein.		Fat.		Crude Fibre.	
			Found.	Guar- anteed.	Found.	Guar- anteed.	Found.	Guar- anteed.
WHEAT FEEDS.								
Bran	Ansted & Burk Co.	Springfield, Ohio....	15.85	14.00	4.17	3.60	.....	11.50
Middlings	Ansted & Burk Co.	Springfield, Ohio....	17.63	14.50	4.77	4.00	.....	7.50
Mixed Feed	Ansted & Burk Co.	Springfield, Ohio....	17.65	14.50	7.07	3.60	.....	11.50
Atlas Wheat Flour Middlings	Atlas Flour Mills Co.	Milwaukee, Wis....	17.20	16.00	5.08	4.50	.....	8.00
Bailey's Fancy Feed	E. W. Bailey & Co.	Montpelier, Vt.	17.68	16.00	4.39	3.75	8.36	8.50
Wheat Flour Middlings	Baldwin Flour Mills.	Minneapolis, Minn. .	17.73	16.50	5.87	5.00	.....	7.00
Fancy White Middlings	Barber Milling Co.	Minneapolis, Minn. .	17.60	17.00	5.52	5.00	.....	8.00
Pure Wheat Bran Flakes	Barber Milling Co.	Minneapolis, Minn. .	16.33	13.00	4.74	4.00	.....	10.00
Pure Wheat Middlings	Barber Milling Co.	Minneapolis, Minn. .	18.95	14.00	6.40	4.00	.....	8.00
White Satin Mixed Feed (Pure Wheat)	Barber Milling Co.	Minneapolis, Minn. .	17.38	16.00	5.14	4.50	.....	9.00
Fancy White Middlings	Bennetts Milling Co.	Lisbon, N. D.	16.63	16.03	6.12	6.00	.....	8.00
Big Diamond Wheat Bran	Big Diamond Mills Co.	Minneapolis, Minn. .	15.59	14.00	4.02	4.00	.....	11.07
Big Diamond Middlings	Big Diamond Mills Co.	Minneapolis, Minn. .	18.21	14.67	5.89	4.21	.....	9.35
Extra Coarse Wheat Bran	Blake Milling Co.	Edwardsville, Ill. .	17.25	15.50	4.25	4.00	.....	11.00
Winter Wheat Middlings	J. P. Burrows & Son.	Flint, Mich.	15.01	14.00	5.10	3.00	.....	9.00
Wheat Flour Middlings	C. S. Christensen Co.	Madelia, Minn.	17.29	14.25	4.91	3.00	.....	5.35
Wheat Bran	Wm. A. Coombs Milling Co.	Coldwater, Mich.	15.02	14.00	3.81	3.00	.....	8.00
Mixed Feed (Winter Wheat)	Wm. A. Coombs Milling Co.	Coldwater, Mich.	18.16	15.00	4.33	3.00	.....	8.00
Monogram Fancy Bran	Wm. A. Coombs Milling Co.	Coldwater, Mich.	17.55	15.00	5.57	3.00	.....	8.00
Wirtmore Middlings	Chas. M. Cox Co.	Boston, Mass.	16.46	15.00	4.92	4.00	.....	10.00
Wirtmore Wheat Feed	Chas. M. Cox Co.	Boston, Mass.	17.51	15.00	5.45	4.00	.....	7.00
Dean's Special Mixed Feed	Chas. M. Cox Co.	Boston, Mass.	16.55	16.00	4.29	4.00	.....	7.00
Splendid Heavy Mixed Feed	For G. E. Dean.	Rochester, N. H.	17.25	16.00	5.01	4.00	.....	7.00
Wheat Bran and Ground Screenings	Detroit Milling Co.	Detroit, Mich.	15.85	15.00	4.63	4.00	.....	.....
Duluth Imperial Bran	Duluth Universal Milling Co.	Duluth, Minn.	15.59	14.60	4.98	4.00	10.25	12.30
Boston Mixed Feed	Duluth Superior Milling Co.	Duluth, Minn.	15.32	15.00	4.81	4.00	.....	11.25
E. A. Co. Wheat Mixed Feed	Duluth Superior Milling Co.	Duluth, Minn.	17.10	16.50	5.03	4.50	.....	9.50
Dairy Maid Winter Wheat Bran	Everett, Aughenbaugh & Co.	Waseca, Minn.	17.25	15.00	5.02	3.00	.....	12.00
Dairy Maid Winter Wheat Middlings	Federal Milling Co.	Lockport, N. Y.	15.15	14.50	4.31	4.00	.....	10.00
Federal Milling Co.	Federal Milling Co.	Lockport, N. Y.	16.59	16.00	4.70	5.00	.....	7.00

WHEAT FEEDS.—Continued.

Dairy Maid Mixed Feed.....	Federal Milling Co.....	Lockport, N. Y.....	15.72	15.00	4.71	4.00	.....	10.00
Lucky Bran (Spring Wheat).....	Federal Milling Co.....	Lockport, N. Y.....	16.55	15.00	4.85	4.50	.....	11.00
Lucky (Spring Wheat) Mixed Feed.....	Federal Milling Co.....	Lockport, N. Y.....	.....	.....	.....	.....	.....	.....
Garland Mixed Feed.....	Garland Milling Co.....	Lockport, N. Y.....	16.99	15.00	5.36	4.00	.....	10.00
Red Dog Flour.....	Globe Elevator Co.....	Greenburg, Ind.....	17.67	.....	4.36	.....	.....	.....
Improved Grafton Wheat Feed.....	Grafton Roller Mill Co.....	Buffalo, N. Y.....	17.08	13.00	4.84	3.00	.....	5.00
Red Flag Mixed Feed.....	D. H. Grandin Milling Co.....	Grafton, No. Dak.....	16.40	15.04	4.82	4.50	.....	9.30
Xtragood Mixed Feed.....	Grissold & Mackinnon.....	Jamestown, N. Y.....	17.90	15.75	4.19	4.50	.....	7.50
Gwynn's Wheat Middlings.....	Gwynn Milling Co.....	St. Johnsbury, Vt.....	18.00	16.00	4.54	4.00	.....	7.50
Gwynn's Wheat Bran.....	Gwynn Milling Co.....	Columbus, Ohio.....	16.85	16.00	5.96	4.00	.....	8.00
Gwynn's Red Dog Flour.....	Gwynn Milling Co.....	Columbus, Ohio.....	17.16	15.78	3.69	4.40	.....	1.80
Acme Mixed Feed.....	J. Hale & Sons.....	Columbus, Ohio.....	17.78	.....	4.19	.....	.....	.....
Choice Wheat Bran.....	Hecker-Jones-Jewell Milling Co.....	Lyon, Mich.....	14.55	14.53	3.61	3.60	.....	7.40
Standard Middlings.....	Hecker-Jones-Jewell Milling Co.....	Buffalo, N. Y.....	15.24	15.75	4.13	3.95	.....	10.36
Mixed Feed.....	Hecker-Jones-Jewell Milling Co.....	Buffalo, N. Y.....	17.40	17.40	7.93	6.08	.....	7.62
Red Dog.....	Hecker-Jones-Jewell Milling Co.....	Buffalo, N. Y.....	17.13	14.64	5.28	5.36	.....	8.83
Purity Mixed Feed.....	Wm. S. Hills Co.....	Buffalo, N. Y.....	19.48	16.41	5.92	3.20	.....	3.83
Wheat Bran.....	Hunter-Robinson-Wing Mill Co.....	Boston, Mass.....	16.55	15.00	4.53	4.50	.....	10.00
Palace Bran.....	Kellor Flour Mills Co.....	St. Louis, Mo.....	18.66	15.50	4.50	4.00	.....	11.00
Rex Middlings.....	Kellor Flour Mills Co.....	St. Louis, Mo.....	17.20	14.00	4.37	3.50	.....	10.00
Kellor's Mill Feed.....	Kellor Flour Mills Co.....	St. Louis, Mo.....	18.30	16.00	4.93	4.00	5.80	7.00
Anchor Bran.....	Kenner Mill & Elevator Co.....	St. Louis, Mo.....	18.58	15.00	4.48	4.00	.....	8.00
Diamond Bran.....	Kenner Mill & Elevator Co.....	Kansas City, Mo.....	17.00	14.50	4.09	4.00	.....	10.00
Wheat Bran.....	Larrabee Flour Mills Co.....	Kansas City, Mo.....	16.99	14.50	3.85	4.00	.....	10.00
Elmco Wheat Fancy Bran.....	Larrabee Flour Mills Co.....	Hutchinson, Kan.....	17.51	14.50	3.89	3.50	.....	10.00
Brooks' Fancy Mixed Feed.....	A. H. McLeod Milling Co.....	La Crosse, Wis.....	17.04	16.50	4.52	5.12	.....	10.13
Middlings.....	McQuesten & Lewis.....	St. Johnsbury, Vt.....	17.16	16.00	4.03	4.00	.....	9.00
Pure Wheat Bran.....	McQuesten & Lewis.....	Manchester, N. H.....	13.58	.....	3.62	.....	.....	.....
Wheat Bran.....	Maple Leaf Milling Co.....	Manchester, N. H.....	14.71	.....	3.70	.....	2.45	.....
Wheat Shorts with Ground Screen.....	Marshall Milling Co.....	Omaha, Neb.....	15.68	14.00	4.58	4.00	.....	11.00
Highest Quality Penant Feed.....	National Milling Co.....	Toronto, Can.....	19.52	15.50	4.55	4.50	.....	12.00
Osola Feed.....	National Milling Co.....	Marshall, Minn.....	15.11	15.00	4.89	.....	.....	11.80
Choice Wheat Bran.....	Niagara Falls Milling Co.....	Marshall, Minn.....	.....	17.00	5.20	5.04	.....	9.44
Pure Wheat Bran.....	Northwestern Consol. Mill Co.....	Toledo, Ohio.....	17.00	16.00	3.76	3.75	.....	8.50
Wheat Flour Middlings.....	Northwestern Consol. Mill Co.....	Toledo, Ohio.....	16.12	16.00	4.50	.....	.....	8.00
Wheat Standard Middlings.....	Northwestern Consol. Mill Co.....	Niagara Falls, N. Y.....	15.85	17.00	5.48	4.50	.....	12.00
Wheat Mixed Feed.....	Northwestern Consol. Mill Co.....	Minneapolis, Minn.....	14.50	14.50	4.22	4.50	.....	11.00
Planet Feed.....	Northwestern Consol. Mill Co.....	Minneapolis, Minn.....	19.22	15.50	5.77	4.50	.....	6.00
XXX Cornet Pure Wheat Product.....	Northwestern Consol. Mill Co.....	Minneapolis, Minn.....	17.86	15.00	5.99	4.50	.....	10.00
	Northwestern Consol. Mill Co.....	Minneapolis, Minn.....	17.75	15.00	5.46	4.50	.....	10.00
	Northwestern Consol. Mill Co.....	Minneapolis, Minn.....	16.11	15.00	5.04	4.00	.....	8.00
	Northwestern Consol. Mill Co.....	Minneapolis, Minn.....	.....	16.50	6.18	.....	.....	3.00

Name of Sample.	Manufactured by	Address.	Protein.		Fat.		Crude Fibre.	
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.
WHEAT FEEDS.—Continued.								
Wheat Bran with Ground Screenings.	Peninsular Milling Co.	Flint, Mich.	13.66	15.00	3.43	3.50	.....	10.00
Wheat Middlings.	Peninsular Milling Co.	Flint, Mich.	15.85	16.00	4.83	4.00	.....	7.00
Pillsbury's Pure and Unaltered Wheat Bran.	Pillsbury Milling Co.	Minneapolis, Minn.	15.76	14.50	4.79	4.00	.....	11.00
Pillsbury's Wheat Bran.	Pillsbury Milling Co.	Minneapolis, Minn.	16.29	14.50	5.14	4.00	.....	12.00
Pillsbury's XX Daisy.	Pillsbury Milling Co.	Minneapolis, Minn.	18.13	16.00	4.87	4.50	11.18	4.00
Pillsbury's A Wheat Middlings.	Pillsbury Milling Co.	Minneapolis, Minn.	18.34	15.00	5.18	4.50	.....	7.00
Pillsbury's Wheat Middlings.	Pillsbury Milling Co.	Minneapolis, Minn.	16.11	15.00	5.81	4.50	.....	10.00
Pillsbury's Fancy Wheat Mixed Feed.	Pillsbury Milling Co.	Minneapolis, Minn.	18.08	16.00	4.51	4.50	.....	9.00
Champion Mixed Feed.	Portland Milling Co.	Portland, Mich.	15.15	13.50	4.01	3.58	8.01	8.47
Bran.	Quaker City Flour Mills Co.	Philadelphia, Pa.	16.44	13.00	3.68	3.00	.....	10.50
Buckeye Mixed Feed.	Quaker Oats Co.	Chicago, Ill.	17.34	15.00	4.99	4.50	.....	8.50
Queen Bee Middlings.	Queen Bee Flour Mills Co.	St. Louis, Mo.	16.64	17.20	4.79	4.30	7.29	7.40
Jersey Fancy Middlings.	M. G. Rankin & Co.	Milwaukee, Wis.	14.80	12.00	7.50	4.50	6.60	7.00
Jersey Fancy Mixed Feed.	M. G. Rankin & Co.	Milwaukee, Wis.	15.69	12.50	7.19	4.00	6.18	9.00
Bran.	Russell-Miller Milling Co.	Minneapolis, Minn.	17.69	13.00	4.74	4.00	.....	11.00
Regular Wheat Feed.	Russell Flour Mills Co.	Albany, N. Y.	17.51	15.00	5.61	4.50	.....	10.00
Standard Middlings.	Russell-Miller Milling Co.	Minneapolis, Minn.	18.00	15.00	5.48	4.00	.....	9.00
Wheat Occident Feed.	Russell-Miller Milling Co.	Minneapolis, Minn.	19.09	15.00	5.65	4.50	.....	10.00
Snow Flake Mixed Feed.	Russell-Miller Milling Co.	Minneapolis, Minn.	17.34	15.00	4.47	4.30	.....	8.00
Gold Mine Feed.	Roller Mills Co.	Lawrenceburg, Ind.	17.38	15.00	5.04	4.90	8.16	8.38
Wheat Screenings.	Shedfield Milling Co.	Albany, N. Y.	18.08	12.00	2.27	3.26	.....	3.93
Try Me (Winter) Mixed Feed.	Starks Milling Co.	Minneapolis, Minn.	11.64	12.00	3.77	3.50	.....	8.00
Wheat Bran.	Starks Milling Co.	Niagara Falls, N. Y.	17.34	14.50	4.23	3.00	.....	9.50
Bran.	Standard-Wilton Milling Co.	St. Louis, Mo.	14.47	13.00	4.53	3.00	.....	10.00
Monarch Fancy Wheat Feed.	F. W. Stock & Sons	Hillsdale, Mich.	14.89	16.00	4.47	4.00	.....	10.00
Middlings.	F. W. Stock & Sons	Hillsdale, Mich.	16.38	16.00	4.47	4.00	.....	6.00
Superior Wheat Feed and Flour.	F. W. Stock & Sons	Hillsdale, Mich.	17.20	16.50	4.39	4.00	.....	7.00
Spring Wheat Bran.	F. W. Stock & Sons	Hillsdale, Mich.	16.90	16.00	4.99	4.50	.....	10.00
Stott's Fine White Middlings.	David Stott Flour Mills	Detroit, Mich.	16.00	16.00	4.70	4.00	.....	7.00
Stott's Fine White Middlings.	David Stott Flour Mills	Detroit, Mich.	18.47	16.00	4.88	5.00	.....	6.00

WHEAT FEEDS.—Continued.

Feed	David Stott	Detroit, Mich.	17.60	17.00	5.34	5.50	.....
Pennant Middlings	David Stott	Detroit, Mich.	16.29	16.00	4.51	4.00	9.00
Stott's Heavy Pure Mixed Wheat Feed	David Stott	Detroit, Mich.	16.20	15.00	3.10	1.50	3.00
Star Flour	Stratton & Co.	Concord, N. H.	16.60	11.00	4.46	4.00	.....
Mixed Feed	Stratton & Co.	Concord, N. H.	15.88	15.00	4.83	4.32	9.12
Middlings	Stratton & Co.	Concord, N. H.	16.46	16.20	5.20	4.26	6.50
Wheat Middlings	Thompson & Hoyt Co.	Lake City, Mich.	17.31	16.00	6.03	5.00	8.00
T and C Wheat Mixed Feed	Thompson & Chester	Buffalo, N. Y.	16.81	15.00	5.19	4.50	9.00
Mixed Feed	O. B. Tilton	Nashua, N. H.	15.62	.....	3.65	.....	.....
Farmers' Favorite Bran	Valley City Milling Co.	Grand Rapids, Mich.	16.12	14.65	4.61	2.81	10.40
Farmers' Favorite Cow Feed	Valley City Milling Co.	Grand Rapids, Mich.	16.37	14.18	4.37	4.25	7.50
Farmers' Favorite Middlings	Valley City Milling Co.	Grand Rapids, Mich.	16.38	15.50	4.51	4.25	7.00
Victor Spring Wheat Bran	Victor Milling Co.	Victor, N. Y.	16.46	14.60	5.28	4.00	15.00
Victor's Pure Middlings	Victor Milling Co.	Grand Rapids, Mich.	17.33	14.50	4.80	5.50	5.00
Big Jo Bran	Wabasha Roller Mill Co.	Wabasha, Minn.	16.46	16.39	5.04	5.15	9.62
Big Jo Mixed Feed	Wabasha Roller Mill Co.	Wabasha, Minn.	16.66	15.80	5.52	3.75	9.35
Mill Run Bran	Wagoner-Gates Milling Co.	Independence, Mo.	16.66	15.00	5.52	3.00	9.00
Wheat Bran	The Walnut Creek Milling Co.	Wilton, N. H.	17.86	15.00	4.51	.....	.....
Adrian Red Dog Flour	D. Whitely & Sons	Wilton, N. H.	19.00	13.00	4.57	3.00	10.00
Wheat Bran	Washburn-Crosby Co.	Minneapolis, Minn.	19.26	17.00	5.50	5.00	4.00
Wheat Flour Middlings	Washburn-Crosby Co.	Minneapolis, Minn.	16.81	14.50	4.36	7.00	12.00
Wheat Standard Middlings	Washburn-Crosby Co.	Minneapolis, Minn.	17.31	17.00	4.35	5.00	6.50
Wheat Mixed Feed	Washburn Mills	Minneapolis, Minn.	17.00	15.00	5.76	5.00	9.50
Selected Arlington Wheat Flour Middlings	Washburn-Crosby Co.	Minneapolis, Minn.	17.29	16.00	4.52	4.50	.....
Black Hawk Bran	Washburn-Crosby Co.	Minneapolis, Minn.	16.59	.....	3.52	.....	.....
Spring Wheat Bran	Western Flour Mills Co.	Dayton, Iowa	17.32	14.60	4.82	4.75	11.00
Kent Mixed Feed	Williams Bros. Co.	Kent, Ohio	15.76	12.00	5.43	5.50	10.86
Wheat Bran	Wolf Milling Co.	Ellingwood, Kan.	16.75	15.50	4.06	3.00	15.00
COTTON SEED MEAL					4.30	3.50	10.00
Red Tag Cotton Seed Meal	American Cotton Oil Co.	Clarksdale, Miss.	38.92	38.55	7.22	7.00	11.50
Ground Beef Scraps	Joseph Brock & Sons	Boston, Mass.	49.04	43.00	16.14	12.00	10.00
Dove Prime Cotton Seed Meal	F. W. Brode & Co.	Memphis, Tenn.	38.53	38.63	10.42	6.00	11.76
Owl Brand High-grade Cotton Seed Meal	F. W. Brode & Co.	Memphis, Tenn.	43.25	41.00	7.48	6.00	10.00
Buckeye Prime Cotton Seed Meal	Buckeye Cotton Oil Co.	Cincinnati, Ohio	37.37	38.62	6.97	6.00	12.00
Good Luck Cotton Seed Meal	S. P. Davis	Little Rock, Ark.	41.50	41.00	7.80	7.00	9.00
Dixie Brand Cotton Seed Meal	Humphreys-Godwin Co.	Memphis, Tenn.	35.00	38.62	6.59	6.00	12.00
Fortat Brand Cotton Seed Meal	Humphreys-Godwin Co.	Memphis, Tenn.	38.87	38.62	7.69	6.00	12.00
Dirigo Brand Cotton Seed Meal	W. Newton Smith	Baltimore, Md.	39.14	41.00	8.18	7.00	10.50

Name of Sample.	Manufactured by	Address.	Protein.		Fat.		Crude Fibre.	
			Found.	Guar- anteed.	Found.	Guar- anteed.	Found.	Guar- anteed.
COTTON SEED MEAL.—Cont'd.								
Pilgrim Cotton Seed Meal.....	J. E. Soper Co.....	Boston, Mass.....	40.54	38.50	9.71	5.00	.....	10.00
Pioneer Cotton Seed Meal.....	J. E. Soper Co.....	Boston, Mass.....	40.72	41.00	8.71	7.00	.....	10.00
Chippewa Choice Cotton Seed Meal.....	Traders & Producers Supply Co.....	Buffalo, N. Y.....	40.19	41.00	8.75	7.50	.....	14.00
Durian Choice Grade Cotton Seed Meal.....	Union Brokerage & Commis- sion Co.....	New Orleans, La.....	43.87	41.00	7.29	7.50	.....	10.00
CORN AND HOMINY FEED.								
Homco Feed.....	American Hominy Co.....	Indianapolis, Ind.....	11.80	9.50	9.04	7.00	.....	7.00
Maisfutter Homco.....	American Hominy Co.....	Indianapolis, Ind.....	11.86	.....	9.26	.....	4.73	.....
Hominy Meal.....	Charles M. Cox.....	Boston, Mass.....	12.08	.....	7.42	.....	4.92	.....
Wirthmore Hominy Meal.....	Charles M. Cox.....	Boston, Mass.....	12.12	9.50	8.39	7.50	5.06	5.00
Enco-Evans Hominy Feed.....	Evans Milling Co.....	Indianapolis, Ind.....	11.95	10.00	8.94	7.50	.....	7.00
Imperial Steam Cooked Feed.....	Imperial Grain & Milling Co.....	Toledo, Ohio.....	9.53	9.50	4.03	4.00	.....	4.00
Badger Hominy Feed.....	Charles A. Krause Milling Co.....	Milwaukee, Wis.....	12.41	10.00	9.05	6.00	4.95	5.00
Maisfutter, A. X. A.....	Sold by A. D. Potter & Co.....	Hinsdale, N. H.....	11.60	.....	5.74	.....	5.01	.....
J. A. Maisfutter.....	August Helms.....	Hamburg.....	11.91	.....	8.03	.....	6.81	.....
Choice Steam Cooked Hominy Feed.....	Miner-Hillford Milling Co.....	Wilkesbarre, Pa.....	12.04	10.00	6.93	5.00	5.26	5.00
Hominy Feed.....	Mystic Milling Co.....	Sionx City, Iowa.....	11.38	11.00	7.35	6.50	6.35	5.00
Hominy Feed.....	Patent Cereals Co.....	Geneva, N. Y.....	10.59	10.00	6.05	6.00	5.55	5.00
Plymouth Pure Hominy Feed.....	Plymouth Milling Co.....	Le Mars, Iowa.....	12.22	10.00	9.28	3.50	.....	.....
May-all Corn Feed.....	Quaker Oats Co.....	Chicago, Ill.....	9.11	8.00	1.61	1.40	.....	2.00
Yellow Hominy Feed.....	Quaker Oats Co.....	Chicago, Ill.....	11.64	9.00	7.31	4.00	4.70	4.00
Acme Hominy Feed.....	Suffern-Hunt Mills.....	Chicago, Ill.....	10.94	9.30	7.68	7.10	.....	10.00
MOLASSES FEEDS.								
Sucrene Dairy Feed.....	American Milling Co.....	Peoria, Ill.....	18.04	16.50	6.33	3.50	10.54	12.00
Chesbro's Corn and Oats Molasses	Chesbro Milling Co.....	Salamanca, N. Y.....	10.62	9.00	3.77	3.00	7.90	8.00
Clover Leaf Dairy Feed.....	Clover Leaf Milling Co.....	Buffalo, N. Y.....	16.61	16.50	5.14	3.50	13.44	12.00
International (Dan Patch) Horse Feed.....	International Sugar Feed Co.....	Minneapolis, Minn.....	12.25	9.00	3.47	3.00	11.55	15.00

Name of Sample.	Manufactured by	Address.	Protein.		Fat.		Crude Fibre.	
			Found.	Guar- anteed.	Found.	Guar- anteed.	Found.	Guar- anteed.
COMPOUNDED FEEDS.								
Burecco Steam Cooked Feed.....	Buffalo Cereal Co.....	Buffalo, N. Y.....	11.47	8.00	5.94	4.00	7.64	9.00
Cremal Dairy Feed.....	Chesbro Milling Co. Inc.....	Salamanca, N. Y.....	17.08	16.00	6.60	4.00	10.96	11.00
Wirthmore Balanced Ration for Mileh Cows.....	Charles M. Cox Co.....	Boston, Mass.....	26.50	.....	5.59	.....	.....	.....
Wirthmore Stock Feed.....	Charles M. Cox Co.....	Boston, Mass.....	10.68	9.00	7.36	4.00	8.64	9.50
Crosby's Ready Ration.....	E. Crosby & Co.....	Brattleboro, Vt.....	28.05	25.00	7.00	7.00	.....	.....
Crosby's Stock Food.....	E. Crosby & Co.....	Brattleboro, Vt.....	9.72	9.00	6.52	4.00	11.95	10.00
Elmore's Stock Feed.....	Elmore Milling Co.....	Oneonta, N. Y.....	9.63	10.00	4.77	5.00	15.12	15.00
Globe Dairy Feed.....	Globe Elevator Co.....	Buffalo, N. Y.....	17.42	14.00	4.29	4.00	7.21	10.00
Grandin's Stock Food.....	D. H. Grandin Milling Co.....	Jamestown, N. Y.....	19.24	8.50	5.41	3.00	10.72	10.00
Gwyn's Dairy Feed.....	Gwyn Milling Co.....	Columbus, Ohio.....	17.51	16.00	5.58	4.00	7.86	7.00
H & S Horse, Mule and Dairy Feed.....	Dwight E. Hamlin.....	Pittsburg, Pa.....	18.21	14.00	3.50	3.50	14.87	16.00
Haskell's Stock Feed.....	W. H. Haskell & Co.....	Toledo, Ohio.....	10.59	8.00	7.34	4.00	.....	8.00
Purity Horse Feed.....	Wm. S. Hills Co.....	Boston, Mass.....	9.38	8.50	3.89	3.00	.....	5.00
Purity Milk Maker.....	Wm. S. Hills Co.....	Boston, Mass.....	26.62	25.00	6.57	8.00	11.72	9.00
Purity Stock Feed.....	Wm. S. Hills Co.....	Boston, Mass.....	11.00	8.00	6.81	3.00	11.22	7.00
Holstein Feed.....	Indiana Milling Co.....	Terre Haute, Ind.....	11.73	11.00	3.03	3.00	18.26	16.00
Larro Feed.....	Marrowe Milling Co.....	Detroit, Mich.....	21.01	19.00	3.73	3.00	12.10	14.00
Horse Feed.....	Mcquesten & Co.....	Nashua, N. H.....	11.99	.....	5.31	.....	.....	.....
C X Feed.....	Postum Cereal Co., Ltd.....	Battle Creek, Mich.....	17.42	15.00	2.83	2.00	21.90	24.00
Daisy Dairy Feed.....	Quaker Oats Co.....	Chicago, Ill.....	16.42	16.00	5.83	4.50	12.11	14.50
Green Cross Horse Feed.....	Quaker Oats Co.....	Chicago, Ill.....	10.46	10.00	2.81	2.50	10.75	12.00
Schumacher Stock Feed.....	Quaker Oats Co.....	Chicago, Ill.....	12.70	10.00	3.98	3.25	9.81	10.00
Victor Feed.....	Quaker Oats Co.....	Chicago, Ill.....	8.89	8.00	3.63	3.00	11.36	12.00
White Diamond Feed.....	Quaker Oats Co.....	Chicago, Ill.....	8.41	8.00	3.58	3.25	9.46	9.00
Jersey Stock Feed.....	M. G. Rankin & Co.....	Milwaukee, Wis.....	19.33	12.00	5.89	5.00	12.38	7.00
Cereal by-product.....	Sold by Franklin P. Rowell.....	Newport, N. H.....	16.33	.....	2.73	.....	3.32	.....
R-E-A-L-A Balanced Ration for Dairy Cows.....	F. B. Spaulding Co.....	Lancaster, N. H.....	24.18	24.00	6.36	6.00	9.55	6.00
New Hampshire Stock Feed.....	Stratton & Co.....	Concord, N. H.....	10.55	10.00	4.33	4.00	5.34	6.00
Stratton & Co.'s Stock Feed.....	Stratton & Co.....	Concord, N. H.....	10.60	9.00	5.36	4.00	9.00	9.00
Star Feed.....	Toledo Elevator.....	Indianapolis, Ind.....	8.67	7.00	6.57	5.50	12.53	12.50

COMPOUNDED FEEDS.— <i>Cont'd.</i>									
Ubeo, Biles Ever-Ready Dairy									
Ration.....									
Ubeo Milling Co.....	24.34	24.00	6.82	7.00	10.43	9.00	17.00	11.00	10.00
A. Waller & Co.....	11.34	9.00	2.73	2.00	.....	.....	.....	.....	.....
Western Grain Products Co.....	16.50	16.50	3.91	3.50	.....	.....	.....	.....	.....
Western Grain Products Co.....	15.33	12.00	4.82	2.80	10.64	11.00	11.00	11.00	10.00
The F. F. Woodward Co.....	10.33	8.50	7.25	3.50	10.85	.....	.....	.....	.....
ALFALFA MEALS.									
Banner Brand Cut Clover	10.25	7.91	2.49	3.36	28.52	29.84	35.00	30.00	30.00
The Albert Dickinson Co.....	14.58	12.00	1.72	1.00	.....	.....	.....	.....	.....
Kornalfalfa Feed Milling Co.....	14.62	12.00	2.15	1.50	.....	.....	.....	.....	.....
Park & Pollard Co.....	14.36	12.00	1.90	1.50	31.98	30.00	30.00	30.00	30.00
Alfalfa Meal.....	16.36	12.00	5.34	5.00	24.67	33.00	33.00	33.00	33.00
M. C. Peters Milling Co.....	16.64	12.00	2.00	.....	.....	.....	.....	.....	.....
Lucerne Pure Alfalfa Meal.....	16.64	12.00	2.00	.....	.....	.....	.....	.....	.....
Red Star Alfalfa Meal.....	14.63	16.60	1.71	1.40	.....	.....	.....	.....	.....
Ground Alfalfa.....	14.10	14.00	2.46	2.50	27.61	29.50	28.50	28.50	28.50
Pure Dustless Alfalfa Meal.....	16.03	14.00	2.60	1.50	18.92	30.00	30.00	30.00	30.00
Calf Meals.									
Blatchford's Calf Meal.....	26.14	24.00	5.28	5.00	6.10	6.75	6.75	6.75	6.75
Blatchford's Milk Mash.....	21.98	20.00	4.70	4.00	4.88	7.50	7.50	7.50	7.50
Grolast Calf Meal.....	26.31	25.00	6.50	5.00	8.16	10.00	10.00	10.00	10.00
Sugarota Calf Meal.....	24.50	25.00	5.94	6.00	5.04	6.00	6.00	6.00	6.00
Schumacher Calf Meal.....	19.05	19.00	8.90	8.00	.....	3.00	3.00	3.00	3.00
Ryde's Cream Calf Meal.....	25.13	25.00	5.18	5.00	5.82	6.00	6.00	6.00	6.00
BEET PULPS.									
Dried Beet Pulp.....	8.76	8.00	.64	.50	.....	20.00	20.00	20.00	20.00
Dried Beet Pulp.....	9.37	8.00	.67	.50	19.12	20.00	20.00	20.00	20.00
Dried Beet Pulp.....	8.80	8.00	.87	.50	.....	20.00	20.00	20.00	20.00
Dried Beet Pulp.....	8.80	8.00	.87	.50	20.04	20.00	20.00	20.00	20.00
Dried Beet Pulp.....	11.25	9.00	.68	.50	19.35	18.00	18.00	18.00	18.00
Dried Beet Pulp.....	8.41	8.00	1.00	.50	.....	20.00	20.00	20.00	20.00
Dried Beet Pulp.....	8.41	8.00	1.03	.50	.....	20.00	20.00	20.00	20.00
Dried Beet Pulp.....	9.54	8.00	.49	.50	.....	20.00	20.00	20.00	20.00
BREWERS' AND DISTILLERS' GRAINS.									
Ajax Flakes.....	31.26	30.00	12.38	11.00	12.30	14.00	14.00	14.00	14.00
Unicorn Dairy Ration.....	27.14	26.00	7.18	5.50	12.94	10.00	10.00	10.00	10.00
Bull Brand Dried Brewers' Grains	28.54	27.90	7.91	6.30	17.20	17.20	17.20	17.20	17.20
Empire State Dairy Feed.....	32.75	28.00	13.70	12.00	18.10	12.00	12.00	12.00	12.00

Name of Sample.	Manufactured by	Address.	Protein.		Fat.		Crude Fibre.	
			Found.	Guar- anteed.	Found.	Guar- anteed.	Found.	Guar- anteed.
BREWERS' AND DISTILLERS' GRAINS.—Continued.								
Dewey's Distillers' Dried Grains.	The Dewey Bros. Co.	Blanchester, Ohio...	28.37	26.00	9.22	9.00	17.50	13.00
Dewey's Ready Ration.	Dewey Bros. Co.	Blanchester, Ohio...	26.53	25.00	6.37	7.00	10.86	9.00
Brewers' Grain.	Helfenreifer & Co.	Boston, Mass.	27.73	20.50	5.76	4.00	14.83	19.00
Hector's Distillers' Dried Grains.	Hoteilet & Co.	Milwaukee, Wis.	28.81	30.00	13.73	10.00	15.52	14.00
Columbia Corn Distillers' Grains.	N. Y. & Ky. Co.	Rochester, N. Y.	22.40	30.00	15.06	10.00	.....	14.00
XXXX Fourx Grains Distillers' Dried Grains.	Ubico Milling Co.	Cincinnati, Ohio....	32.31	31.00	10.02	12.00	13.00	13.00
GLUTEN FEEDS.								
Cream of Corn Gluten Feed.	American Maize Products Co.	New York....	25.48	23.00	2.50	2.50	6.28	3.50
Clinton Corn Gluten Feed.	Clinton Sugar Refining Co.	Clinton, Iowa	26.01	29.00	3.36	3.00	7.41	8.00
Continental Gluten Feed.	Continental Cereal Co.	Peoria, Ill.	27.84	23.00	11.32	10.50	.....	10.50
Buffalo Corn Gluten Feed.	Corn Products Refining Co.	New York....	25.83	23.00	3.63	1.00	6.66	8.50
Crescent Gluten Feed.	Corn Products Refining Co.	New York....	25.04	23.00	4.15	2.00	.....	8.50
Diamond Gluten Meal.	Corn Products Refining Co.	New York....	45.00	40.00	4.94	1.50	.....	4.00
Queen Corn Gluten.	Corn Products Refining Co.	New York....	28.63	20.00	2.59	1.00	6.34	8.50
Buffalo Gluten Feed.	Clas. M. Cox Co.	Boston, Mass.	23.82	.....	4.12	.....	5.53	.....
Douglas Corn Gluten Feed.	Douglas Co.	Cedar Rapids, Ia.	22.51	20.00	3.25	2.00	7.23	8.00
KKK Corn Gluten Feed.	J. C. Hubinger Bros. Co.	Keokuk, Iowa	26.35	23.00	5.05	2.40	.....	7.50
Jenks' Gluten Feed.	Huron Milling Co.	Harbor Beach, Mich.	24.78	22.25	5.41	3.00	8.67	8.00
Staley's Gluten Feed.	A. E. Staley Mfg. Co.	Decatur, Ill.	24.52	23.00	4.53	2.50	7.23	12.00
FLAXSEED MEAL.								
Cleveland Flaxmeal.	American Linseed Co.	Chicago, Ill.	38.26	36.00	2.61	2.00	.....	9.00
Hypro Pure Linseed Meal.	American Linseed Co.	Chicago, Ill.	38.35	36.00	3.00	2.00	.....	9.00
Linseed Oil Meal.	American Linseed Co.	Chicago, Ill.	38.13	36.00	3.45	2.00	.....	9.00
Old Process Linseed Oil Meal.	American Linseed Co.	Buffalo, N. Y.	38.08	34.00	5.69	5.00	.....	8.00
Old Process Oil Meal.	American Linseed Co.	New York, N. Y.	33.54	34.00	5.49	5.00	.....	8.00
Pure (Old Process) Oil Meal.	Kellogg & Miller.	Amsterdam, N. Y.	35.29	32.00	5.97	4.00	.....	9.00
Old Process Oil Meal.	Metzger Seed & Oil Co.	Toledo, Ohio.	33.19	30.00	6.76	5.00	9.74	10.00
Old Process Ground Linseed Meal.	Midland Linseed Products Co.	Minneapolis, Minn.	34.33	32.00	8.54	5.00	.....	9.50
Major Br. Old Process Oil Meal.	Toledo Seed & Oil Co.	Toledo, Ohio.	32.00	30.00	6.61	5.00	.....	10.00

PROVENDER.									
Provender.....	Moulton & Clark.....	Lisbon, N. H.....	10.24	.....	4.21	.....	5.11	.....	.....
Provender.....	J. C. Richardson.....	Littleton, N. H.....	8.28	.....	3.61	.....	12.30	.....	.....
Provender.....	Stratton & Co.....	Concord, N. H.....	10.59	.....	5.36	.....	5.55	.....	.....
MEAT AND BONE FEEDS.									
Ground Meat Scraps.....	American Agricult'l Chem. Co.	New York.....	44.39	40.00	11.63	5.00	.....	5.00	.....
Bradley's Superior Meat Meal.....	American Agricult'l Chem. Co.	New York.....	34.06	30.00	13.12	8.00	.....	15.00	.....
Fish Scraps.....	American Glue Co.....	Boston, Mass.....	47.19	50.00	2.08	2.00	.....	1.00	.....
Pure Ground Feed Scraps.....	Beach Soap Co.....	Lawrence, Mass.....	42.06	40.00	10.81	20.00	.....	.....	.....
Beach's Star Brand Meat and Bone Meal.....	Beach Soap Co.....	Lawrence, Mass.....	29.86	.....	8.18	.....	.....	.....	.....
Beach's Superior Beef Scraps.....	Beach Soap Co.....	Lawrence, Mass.....	64.53	50.00	15.86	15.00	.....	7.00	.....
Animal Meal.....	Bowker Fertilizer Co.....	Boston, Mass.....	40.19	40.00	12.69	5.00	.....	15.00	.....
Burlington Poultry Feed.....	Burlington Rendering Co.....	Burlington, Vt.....	37.30	10.00	11.52	8.00	.....	.....	.....
Ground Beef Scraps.....	John C. Dow Co.....	Boston, Mass.....	47.28	43.00	16.29	12.00	.....	.....	.....
Greene's Old Fashioned Meat Scraps.....	Greene Chicken Feed Co.....	Marblehead, Mass.....	37.74	35.00	10.25	5.00	.....	.....	.....
Meat Scraps.....	W. D. Higgins.....	Framingham, Mass.....	22.81	40.00	18.00	12.00	.....	.....	.....
Meat Scraps.....	Home Soap Co.....	Worcester, Mass.....	34.50	40.00	15.08	12.00	.....	.....	.....
Red Star Brand Fish Scraps.....	International Glue Co.....	Boston, Mass.....	70.00	45.00	2.44	2.00	.....	.....	.....
Beef Scrap.....	A. Lord & Co.....	Chelsea, Mass.....	28.19	30.00	18.58	17.00	.....	.....	.....
Lowell Bone and Meat Meal.....	Lowell Fertilizer Co.....	Boston, Mass.....	52.29	35.00	11.97	8.00	.....	.....	.....
Bone and Meat Meal for Poultry.....	Manchester Rendering Co.....	Manchester, N. H.....	38.71	35.00	12.81	8.00	.....	.....	.....
Marsh's Pure Ground Scraps.....	The George E. Marsh Co.....	Lynn, Mass.....	38.59	40.00	10.17	10.00	.....	.....	.....
Ground Scraps.....	Carroll S. Page.....	Hyde Park, Vt.....	48.86	40.00	16.25	15.00	.....	.....	.....
Shay's Pure Ground Beef Scrap.....	C. M. Shay Fertilizer Co.....	Groton, Conn.....	38.61	40.00	12.79	10.00	.....	.....	.....
Extra Quality Beef Scraps.....	Whitman & Pratt Rendering Co.....	Lowell, Mass.....	48.43	55.00	12.66	10.00	.....	.....	.....
Beef Scraps.....	Whitman & Pratt Rendering Co.....	Lowell, Mass.....	43.69	45.00	11.79	10.00	.....	.....	.....
OAT FEEDS.									
Oat Feed.....	Robin Hood Mills, Ltd.....	Moose Jaw, Can.....	6.74	5.25	3.33	2.50	24.28	28.00	.....



